

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.- 4. (canceled).

5. (Previously Presented) A multiple print engine for printing one or more copies of a multiple page document input as a single multiple page print job, comprising:

a plurality of physical print engines, each having an input for rasterized page data and an output bin for receiving printed output pages; and

5 a job distributor having a single RIP engine for receiving said multiple page document and generating therefrom rasterized page data and providing said rasterized page data organized for parallel distribution by said job distributor to said inputs of selected different ones of said plurality of physical print engines according to print job parameters associated with and recovered from said rasterized page data.

6. (Previously Presented) The apparatus to Claim 5, wherein each said physical print engine comprises an electrophotographic print engine having an interface circuit coupled to said input for receiving said rasterized data from said job distributor.

7. (Previously Presented) The apparatus of Claim 5, wherein said job distributor comprises:

a RIP engine for receiving said multiple page document and rasterizing it into rasterized images, each said rasterized image comprising a page of said single print job;

a storage device for storing each said rasterized image;

5 an image task manager for retrieving said rasterized image for said print job from said storage device and determining a print order for each said page of said print job according to said print job parameters for said rasterized image associated with each said page; and

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an engine manager for selecting one of said physical print engines to print each retrieved rasterized image according to said print order and distributing said image to said select one of said physical print engines according to said print order.

10 8. (Previously Presented) The apparatus of Claim 7, wherein said print job parameters associated with each said rasterized image comprises information encoded in said rasterized page data and information entered by a user.

9. (Previously Presented) The apparatus of Claim 8, wherein said encoded information includes data selected from a list comprising the number of document copies, the number of pages in each document, printing color and printing resolution, speed and bit depth.

10. (Previously Presented) The apparatus of Claim 7, wherein said RIP engine comprises:

a decoder for decoding received input print strings;
a rasterizer for generating a rasterized image mapped according to said decoded input
print strings; and
a formatter for constituting each said image as a page of data.

11. (Previously Presented) The apparatus of Claim 7, wherein said storage device comprises a plurality of page buffers for storing successively rasterized page images.

12. (Previously Presented) The apparatus of Claim 7, wherein said image task manager comprises:

a disassembler for extracting said print job parameters from said rasterized image and reading said information entered by said user; and
an arranger for arranging said print order for each print job based on said print job parameters and said information entered by a user.

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13. (Previously Presented) The multiple print engine of Claim 7, wherein said image task manager is operable to allow rasterized images to be directly routed to said engine manager as they are output by said processor.

14. (Previously Presented) The multiple print engine of Claim 7, comprising a write-through mode wherein a portion of said rasterized images is temporarily stored in said storage device when throughput through said RIP engine is greater than the throughput through said engine manager.

15. (Previously Presented) The multiple print engine of Claim 7, wherein said engine manager comprises:

a selector responsive to said print order for associating one of said plurality of physical print engines with each said rasterized image; and

5 a distributor for coupling said selected physical print engine to said storage device and transferring said image to said selected physical print engine.

16. (Previously Presented) The multiple print engine of Claim 7, wherein each of said rasterized images has associated therewith print characteristics for the print job, such that said engine manager is operable to control said selected one physical print engine independent of information encoded in said rasterized images that are sent to said selected one physical print engine.

17. (Previously Presented) The multiple print engine of Claim 7, wherein said engine manager is operable to send rasterized images to at least two physical print engines at the same time.

18. (Previously Presented) A multiple print engine for printing a multiple page document input as a single print job, comprising:

a plurality of physical print engine modules, each having an input for rasterized data and an output bin for receiving printed output pages;

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5 a processor for receiving said multiple page document, rasterizing it into rasterized images and storing said rasterized images in association with information regarding final rendering thereof, each said rasterized images comprising a page of said single print job;

an image task manager for retrieving the rasterized image for said print job from said processor and determining a print order for each said page of said print job according to said information associated with said rasterized images; and

10 an engine manager for selecting one physical print engine module of said plurality of physical print engine modules to print each retrieved rasterized image according to said print order, and said information associated with said retrieved image and distributing said retrieved rasterized image to said select one of said physical print engines modules according to said print order.

19. (Previously Presented) The apparatus to Claim 18, wherein each said physical print engine module comprises an electrophotographic print engine having an interface circuit coupled to said input for receiving said rasterized data from said engine manager.

20. (Previously Presented) The multiple print engine of Claim 18, wherein said processor comprises:

a decoder for decoding received input print strings;

a RIP engine for generating a rasterized image mapped according to said decoded input

5 print strings;

a formatter for constituting each said image as a page of data; and

a storage device for storing each said rasterized image.

21. (Previously Presented) The multiple print engine of Claim 20, wherein said storage device comprises a plurality of page buffers for storing successively rasterized images.

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22. (Previously Presented) The multiple print engine of Claim 18, wherein said image task manager comprises:

a dissembler for extracting said information associated with said rasterized images; and

an arranger for arranging a print order for each print job based on said information associated with said rasterized images.

23. (Previously Presented) The multiple print engine of Claim 20, wherein said image task manager is operable to allow said rasterized images to be directly routed to said engine manager as they are output by said processor.

24. (Previously Presented) The multiple print engine of Claim 23, comprising a write-through mode wherein a portion of said rasterized images is temporarily stored in said storage device when throughput through said engine manager is greater than the throughput through said RIP engine.

25. (Previously Presented) The multiple print engine of Claim 18, wherein said engine manager comprises:

a selector responsive to said print order for associating one of said plurality of physical print engine modules with each said rasterized image; and

a distributor for coupling said selected physical print engine module to said storage device and transferring said image to said selected physical print engine module.

26. (Previously Presented) The multiple print engine of Claim 18, wherein said image task manager is operable to allow rasterized images to be directly routed to said engine manager as they are output by said processor.

27. (Previously Presented) The multiple print engine of Claim 18, wherein said engine manager is operable to send said rasterized image to at least two physical print engine modules at the same time.

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